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Newsline

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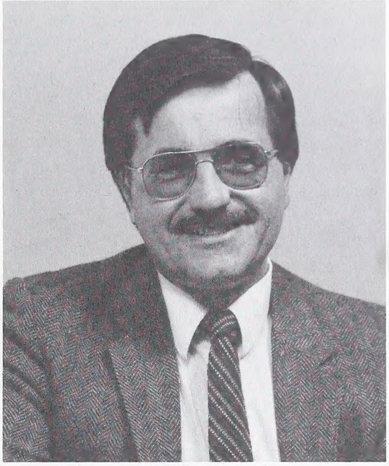
Dr. Arvid Hardin appointed Head of Coal Research Department



Dr. Arvid H. Hardin, a scientist with extensive hydrocarbon research and management experience, has been appointed Head of the Coal Research Department.

Dr. Hardin holds a Ph.D. in chemistry from the University of British Columbia where he studied the properties of ice and gas-hydrate calthrates. Moving from fundamental to applied research he was a Research Associate to Professor Norman Sheppard in the School of Chemical Sciences at the University of East Anglia in the U.K. Studies there included spectroscopic investigations of model and commercial heterogeneous catalysts.

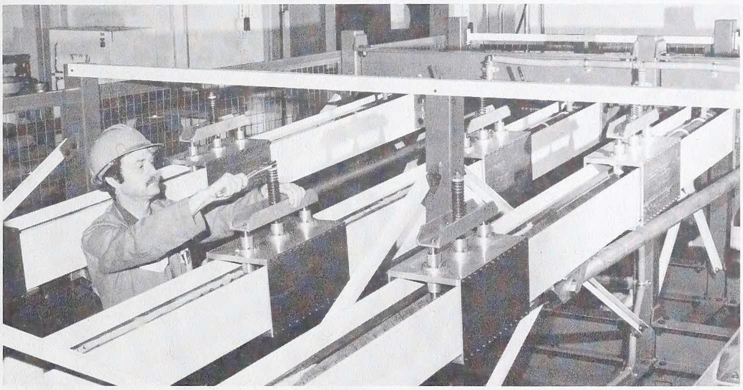
As a Senior Research Associate at the University of Montreal and as a scientist for the Department of Environment, Canada, Dr. Hardin extended the work on surface studies to include halogenated hydrocarbons and molecules sorbing from the water phase onto model sediments.

In 1975, he joined CANMET's Energy Research Laboratories in Ottawa, where he was responsible for management and coordination of coal, heavy oil and uranium processing research projects. He established for CANMET equipment and methods for hydrocarbon proton and carbon magnetic resonance studies and an advanced catalyst surface analysis laboratory.

As a scientist with CANMET, he worked on the testing of commercial catalysts and on the development of large pore diameter hydrocracking catalysts for treatment of bitumen and heavy oil. While working with CANMET he gained further exposure to coal gasification, Fischer Tropsch Liquefaction, commercial H-Oil and L-C Fine Hydrocracking, the CANMET hydrocracking process, and was instrumental in initiating CANMET's Co-processing Program for coal and bitumen in 1977.

Seeking direct industrial experience, Dr. Hardin joined Syncrude Canada Ltd., in 1979, where he had seven years experience as a project leader, technical manager and division manager of Research and Technical Support Programs in oil sands extraction, froth treatment, analytical research and upgrading. More recently he has been associated with Kilborn Energy Inc., Edmonton, as a process consultant working with Alberta Energy industries.

He will take up his appointment with the Research Council March 16.



Technologist Mario De Rocco, Oil Sands Research Department, adjusts tension on a test apparatus for measuring the wear between a sucker rod and tubing string used in oil wells. The wear test facility at Clover Bar was constructed by the Centre for Frontier Engineering Research, with the cooperation of the Research Council. C-FER was established in 1983 to address problems related to the safe and economical development of Canada's frontier petroleum resources. The Research Council is providing space and access to its utilities and machine shop.

Newsline is a monthly publication for the employees of the Alberta Research Council.

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Scientific exchange teaches cultural lesson

A year's sojourn in Japan as part of a scientific exchange has left Martin Stanley-Jones with a new appreciation of computer graphics, respect for Japan's legendary industrial success and memories of "an unusually friendly and generous people," anxious to introduce him to all facets of their culture.

For his part, the senior research officer in the Research Council's Atmospheric Sciences Department left his hosts at the Nippon Telegraph and Telephone Corporation (NTT) with some new wrinkles for analyzing weather data using computer graphics displays as well as broader insight into the Canadian approach to research and development.

The exchange, arranged between NTT and the Canadian Department of Communication, was jointly funded by the Research Council and the federal External Affairs Department. And, according to Stanley-Jones, it is the kind of scientific interaction that could prove invaluable to Canada in future, as Japan pursues its aggressive economic goals at home and abroad.

"Exchanges such as this help us in the west understand the way the Japanese do business. For example, they like to feel they are friends with an organization before they start doing business. In North America, exactly the opposite applies. We tend to do business first—and sometimes friendships develop out of that business relationship."

He noted many other contrasts. While a new North American organization would be likely to attract personnel first, then buy equipment, new Japanese firms tend to set their objectives, buy equipment, then hire people to learn, not only how to use the equipment, but also how to improve on it for future economic gain.

The approach to research also differs. "In Japan research projects are generally measured in months compared to years in North America," notes Stanley-Jones, adding that failure to produce results in the designated time can have a devastating effect on the researcher's self-image.

Despite the difficulties of working in a foreign language, Stanley-Jones considers his time spent at NTT's Integrated Communications Laboratories in the Yokosuka Research Centre south of Tokyo, extremely worthwhile. Returning to Edmonton in November, 1986, he recalled: "As well as my work in computer graphics and image processing, I was expected to observe Japanese methodology—to see which areas were being stressed."

NTT, he says, provided an ideal site for such observations. Once government-operated, NTT became a private organization in 1985 and strong demand for shares suggests the Japanese have great faith in both the company's productivity and its potential for major technological advance in the communications field.

According to Stanley-Jones, the secret behind Japan's much vaunted productivity and management success boils down to hard work, a determination to improve on a good thing, and the general commitment to organizational success. For example, employees who have put in a full day's work routinely spend another four hours working without pay as a form of appreciation to their employer for the job and attendant perks such as subsidized housing and transport. This commitment, in turn, generally means greater productivity and substantial semi-yearly bonuses for those who contribute to corporate success.

As part of his contribution, Stanley-Jones introduced his Japanese colleagues to the analysis of weather radar data gathered by the Research Council at the Penhold station. "The Japanese analyses in the past had involved still photography and since I was able to

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Fan-tastic, says Martin Stanley-Jones as he displays souvenirs of his year in Japan to colleague Lorne Duncan.

Shared technology boon to researchers, clients

Ask Dr. Michael Gray how long it takes to analyze a gas chromotography/mass spectrometry sample, and the reply is likely to be: “Anywhere from 15 minutes to six months.”

The manager of the Research Council's Analytical Chemistry Laboratory in the Industrial Technologies Department is not being facetious. He is simply underscoring the fact that work in the lab is rarely routine. The samples which generally occupy the attention of the technical staff are there because of their complexity, he says, and because analyzing them quickly and efficiently calls for the most advanced and powerful analytical tools in the business.

“In fact, most GC/MS samples don't take 15 minutes and most don't take six months to analyze. The average is two to five hours. But since we are a research organization, we can expect that samples submitted to us for analysis are generally ‘different’ in some way. A single sample can become a mini research project in itself.”

Dr. Gray believes the collection of highly sophisticated equipment devoted to inorganic analysis and spectroscopy offers a good example of the Research Council policy of sharing resources for the ultimate benefit of in-house researchers and external clients.

“This is just one of eight facilities that make up the Research Council's analytical and testing services. Each lab specializes in certain areas so that duplication of expensive equipment is minimized and the various analytical services are easily accessible.”

Dr. Gray estimates acquisition costs for equipment at roughly $1.5 million. And while inflation on the highly computerized units runs at two to three times normal rates, spectacular improvements in capability help to offset rising prices. “We are now able to do in a week what couldn't be done in a year, 15 years ago.”

While the lab handles work for its own department—often in support of small business—and on occasion works directly for outside clients (providing the required services are not commercially available), the bulk of its activity is in support of other Research Council groups.

“Approximately 80 percent of our work is for other Research Council departments. The Soils Analytical Laboratory is our largest client. They prepare samples but the bulk of analyses is transferred to us. This results in a very close working relationship. The same applies to the Biotechnology Department which sends us samples related to their fermentation work.”

Technologist Wendy Wade operates the nuclear magnetic resonance spectrometer used to determine the structure of organic compounds.

Closer to home, the Industrial Technologies Department itself generates work that ranges from identifying components of various plastic materials for the Industrial Services Laboratory to testing breathing oxygen for Department of National Defence bases throughout western Canada.

Ron Wasel, head of the Gasoline and Oil Testing Laboratory, which administers the DND contract, says: “We don't have the equipment to do the breathing oxygen analyses and Mike's lab does. We also use their services for complex analyses of fuels and lubricants. There is no set program—but they are there when we need them.”

Coal and oil sands researchers also make frequent use of the service. “Because we work so closely with industry, we often get requests from clients for special analyses,” says Dr. Charles Reichert of the Oil Sands Analytical Laboratory. Among those recently referred to the analytical chemists were analyses of waste water samples for Nova/Husky and of oil sand samples related to a major CANMET study.

Some of the most experienced technologists in the organization work in this lab,” says Dr. Gray. “Most have at least 10 years experience in chemical analysis with the Research Council.”

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present them with perpetually changing information, thanks to the use of an electronic sensing device, they were extremely excited. With their knowledge of computer graphics they hoped they could make something more of this technology and they have invited me to return annually to help them continue this work.”

The exchange included visits to several industry, university and government laboratories including Tokyo's Radio Research Laboratory and Tsukuba Science City which houses some 46 national and research institutes, all of which reflect the increasing Japanese interest in research and development.

“NTT is particularly interested in exposing its scientific staff to western culture while at the same time giving exchange scientists an opportunity to appreciate Japanese culture and way of life.”

(The Research Council participates in other scientific exchanges with Japan. Newsline has featured a number of Japanese scientists working with Dr. Toshi Kaneda in the microbiology laboratory.)

Speaker series begins Feb. 18

A new speaker series, to bring distinguished researchers from the AOSTRA/University program to the Research Council to discuss their work and meet their Research Council colleagues, has been organized by the AOSTRA/University Working Party.

Professor Norman Wardlaw, Geology and Geophysics Department, University of Calgary, will give the first presentation February 18 at 9 a.m. in the Terrace Plaza conference room. His topic will be "Evaluation of Factors Affecting Conventional Oil Recovery."

On March 17 at 10 a.m. in the Auditorium, Dr. J.B. Hyne, Chemistry Department, University of Calgary, will discuss "Aquathermolysis - the Chemical Reaction of Steam with Heavy Oil Sands."

Dr. Mike Boorman, Head, Chemistry Department, University of Calgary, will give a presentation on "Some Studies of Hydrotreating Catalysis", April 15 in the Auditorium.

This is the second year of operation of the Working Party, which was formed in 1985 to monitor the University Program through the Research Council's membership in the AOSTRA/ACCESS agreement. Under the AOSTRA/University Program, AOSTRA funds university researchers and through the AOSTRA/ACCESS agreement, companies can obtain early access to research results. The Working Party's mandate is to represent the Research Council's interests in the program and to transfer technology to potential users within the Research Council.

In addition to the speaker series, the Working Party coordinates Research Council staff attendance at the annual AOSTRA/University Review Meetings and prepares an annual report which reviews the university projects and identifies potential areas of impact or opportunity for Research Council research.

Information on the speaker series and the activities of the Working Party may be obtained from the speaker coordinator, Leszek Lewkowicz, Coal Research (955-7891), or Dr. Peter Tremaine, Oil Sands Research (464-9245).

When Harold Kay marked 30 years with the Research Council in January, his colleagues in Materiel Management threw him a surprise party. Here Dr. Duncan Currie, Helga Radvanyi-Starr and Peter Williams admire one of Harold's gifts.

Support for Shad Valley sought

Each year 500 high school students across Canada participate in the Shad Valley Summer Program, operated since 1980 by the Canadian Centre for Creative Technology, Waterloo, Ontario. The summer program provides a unique opportunity for exceptionally talented students to deepen their interest in technology while enjoying a unique four-week holiday on the campus of one of five participating universities: Calgary, British Columbia, Manitoba, Waterloo and New Brunswick.

The university program introduces students to new concepts in mathematics, computing, engineering and entrepreneurship and gives them sessions in hands-on learning experience.

This program offers an opportunity for industry to make contact with an outstanding group of young people by sponsoring a six-week paid work-term for the student in a high tech environment. In addition to the financial support, says Joan Cartmell, Human Resources Department, the sponsor acts as a mentor during the work period.

The Research Council is one of the sponsors of the Shad Valley program and in the past two years has given a student the opportunity to work in the Biotechnology and Advanced Technologies Departments.

The Human Resources Department is seeking support to employ a Shad Valley student again this year. This will require the employing department to provide $1500 in funding for the six-week work term and to give the student suitable work supervision.

Student applications for sponsorship are sent out from the Canadian Centre for Creative Technology in April. Departments interested in participating in the summer program should contact Joan Cartmell before April 1.

All 1986 medical and dental claims must be forwarded to the Human Resources Department by March 31, 1987 to be eligible for reimbursement.

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